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(NL). VAN ARENDONK, Anton, P., M. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

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(74) Agent: **DUIJVESTIJN, Adrianus, J.**; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

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(71) Applicant (*for all designated States except US*): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

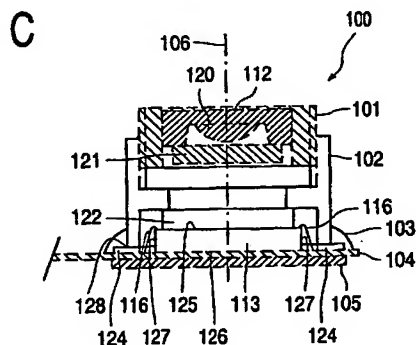
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(72) Inventors; and

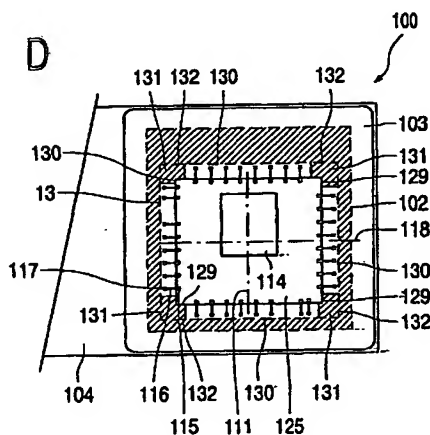
(75) Inventors/Applicants (*for US only*): **GROOT, Erik, H.** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven

[Continued on next page]

(54) Title: CAMERA MODULE, HOLDER FOR USE IN A CAMERA MODULE, CAMERA SYSTEM AND METHOD OF MANUFACTURING A CAMERA MODULE



(57) Abstract: The invention relates to a camera module 100. The camera module 100 comprises a holder 102, which provides a light-conducting channel 122. Within the light-conducting channel 122 a lens 120 having an optical axis 106 is present. A solid-state image sensor 113 is present near an end 128 of the light-conducting channel 122. The image sensor 113 is provided with an image section 114, which is oriented perpendicularly to the optical axis 106. Near the end 128 of the light-conducting channel, forming part of the holder 102, aligning means 131 are present for aligning the image section 114 with the optical axis 106. In one embodiment of the camera module 100, the inner wall 130 of the holder 102 is substantially rectangular, seen in cross-sectional view in a direction perpendicular to the optical axis 106. Bulges 131 present near the corners of the rectangle form the aligning means. The bulges 131 are provided with L-shaped recesses 129 in which the lateral surfaces 127 of the solid-state image sensor 113 are placed substantially without play. This method of aligning the image section 114 with the optical axis 106 simplifies the manufacture of the camera module 100.





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Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 08, 5 August 2002 (2002-08-05) -& JP 2002 118776 A (KONICA CORP), 19 April 2002 (2002-04-19)	1-4, 6, 7, 9-12
A	abstract see figures 2 and 8 of the publication in Japanese	5, 8
X	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 24, 11 May 2001 (2001-05-11) -& JP 2001 188155 A (KUURII COMPONENTS KK; SHINTEN SANGYO CO LTD), 10 July 2001 (2001-07-10) abstract	1-3, 9-12
	--- -/-	



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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Wentzel, J

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Category *	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 04, 31 August 2000 (2000-08-31) -& JP 2000 004386 A (OLYMPUS OPTICAL CO LTD), 7 January 2000 (2000-01-07) abstract	1-3, 9-12
X	US 5 783 815 A (IKEDA SHIGEO) 21 July 1998 (1998-07-21) column 6, line 45 -column 8, line 46	1, 9, 11, 12
P, A	WO 02 075815 A (CAMBOU PIERRE ;SIMON GILLES (FR); ATMEL GRENOBLE S A (FR)) 26 September 2002 (2002-09-26) page 2, line 30 -page 4, line 12 page 4, line 29 -page 6, line 15	1, 5, 7, 9-12
A	US 2002/057468 A1 (ASAGA JUN ET AL) 16 May 2002 (2002-05-16)	

INTERNATIONAL SEARCH REPORT

P B 03/03131

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
JP 2002118776	A	19-04-2002	NONE		
JP 2001188155	A	10-07-2001	NONE		
JP 2000004386	A	07-01-2000	NONE		
US 5783815	A	21-07-1998	JP	9181287 A	11-07-1997
WO 02075815	A	26-09-2002	FR WO	2822326 A1 02075815 A1	20-09-2002 26-09-2002
US 2002057468	A1	16-05-2002	CN	1354596 A	19-06-2002
			EP	1220324 A2	03-07-2002
			JP	2002223378 A	09-08-2002
			TW	528889 B	21-04-2003